

# ROTEL *hi fi*

## RB951

### Stereo/Mono Power Amplifier

## OWNERS MANUAL

Please write the serial number, date of purchase and the name of **Rotel hi fi** *Authorized Dealer* in the spaces provided for your future reference.

Serial number \_\_\_\_\_, Purchase date \_\_\_\_\_.

Rotel hi fi *Authorized Dealer* \_\_\_\_\_.

# SAFETY INSTRUCTIONS



## • Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

- 1. Read Instructions** - All the safety and operating instructions should be read before the appliance is operated
- 2. Retain Instructions** - The safety and operating instructions should be retained for future reference.
- 3. Read Warnings** - All warnings on the appliance and in the operating instructions should be adhered to.
- 4. Follow Instructions** - All operating and other instructions should be followed.
- 5. Water and Moisture** - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
- 6. Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

## PORTABLE CART WARNING



S325A

- 7. Wall or Ceiling Mounting** - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 8. Ventilation** - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9. Heat** - The appliance should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.

## EXCLUSIVE NOTE FOR U.K.

If your unit comes with a 2-core cable without a plug, make certain live and neutral leads are connected to the proper terminals. Check that the terminals are screwed down firmly and no loose strands of wire are present. **IMPORTANT:** The wires in this mains lead are coloured in accordance with the following code:

BLUE: NEUTRAL

BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLUE or BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or colour BROWN or RED.

## APPLICABLE FOR USA, CANADA OR WHERE APPROVED TO THE USAGE

**CAUTION :** TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE PLUG TO WIDE SLOT, INSERT FULLY .

**ATTENTION :** POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

- 10. Power Source** - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- 11. Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 12. Cleaning** - The appliance should be cleaned only as recommended by the manufacturer.
- 13. Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
- 14. Object and Liquid Entry** - Care should be taken so that objects do not fall into and liquids not spilled into the inside of the appliance.
- 15. Damage Requiring Service** - The appliance should be serviced by qualified service personnel when:
  - The power-supply cord or the plug has been damaged; or
  - Objects have fallen, or liquid has been spilled into the appliance; or
  - The appliance has been exposed to rain; or
  - The appliance does not appear to operate normally or exhibits a marked change in performance; or
  - The appliance has been dropped, or the cabinet damaged.
- 16. Servicing** - The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17. Grounding or Polarization** - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

## A WORD FROM ALL OF US AT ROTEL

Thank you for purchasing our RB 951 stereo/mono power amplifier. We have been designing and manufacturing high quality, high performance audio electronics for more than 35 years. We are famous for our love of music and our passion for good sound. This stereo power amplifier was designed to offer lifelike sound and is a natural extension of our love of music. We believe that the music played through this amplifier will be a source of enjoyment to you for many years to come. We have designed this amplifier to be durable, easy to operate and to have *high fidelity to the original sound*. Please read this owners manual to ensure that the amplifier is properly installed. We appreciate being a part of your life.

## DESIGN FEATURES

The power supply is derived from a Rotel designed and manufactured toroidal power transformer. The RB 951 has a highly regulated power supply to ensure maximum power capability into difficult speaker loads. This type of design is more expensive to manufacture but it is *better for the music*. This amplifier will drive 4 ohm speakers very well. Two of these amplifiers would be an excellent choice for bi-amping a set of high performance two way speakers in a stereo system. This is also an excellent amplifier for custom installation use.

This amplifier will increase its power output if it is operated in the BRIDGED MONO mode. This is easily done by setting the switch to BRIDGED and changing the speaker wiring for BRIDGED MONO use. PARALLEL MONO operation is also possible. *Minimum speaker impedance*, in bridged mono operation, is 8 ohms. (See CONNECTIONS and SETTINGS.)

We have designed the Printed Circuit Boards with Symmetrical Circuit Traces. This insures that the precise timing of the music is maintained and faithfully recreated. Circuit traces of different lengths change the timing between the channels slightly. This is unacceptable to us. The PCB is used to transfer the audio signals. We feel this is more consistent than the sound quality of wire jumpers. The PCB contains metal film resistors, polystyrene or polypropylene capacitors in selected applications. All aspects of this design have been examined with the final goal being the faithful reproduction of music.

## INSTALLATION

Please place the unit on a DRY level surface, away from direct sunlight. ***Please do not stack other components on top of the RB 951 as they may cause the amplifier to overheat. We suggest 75 mm (~3") as a minimum clearance above the RB 951.*** If the amplifier is installed inside a cabinet, please be certain that there is adequate air flow to ensure proper cooling. *Do not allow water or objects to fall into the amplifier as these will damage the circuitry.* Avoid installing the amplifier in a location where excessive humidity, vibration or moisture will be a problem. We recommend installing the RB 951 in furniture designed to house Hi Fi components. Component furniture will reduce or suppress vibration. All audio components will provide improved sound when free from vibration. Ask your **ROTEL hi fi AUTHORIZED DEALER** for advice about component furniture and proper installation of audio components.

Please be careful to keep the power cords, digital, video and audio signal cables separated in your installation. This will minimize the chance of interference from the power cords or digital cables getting into the analog or video signal cables. We recommend high quality, *shielded* cables in sound systems for this reason as well.

## ELECTRICAL REQUIREMENTS

This amplifier is designed to operate on AC voltage and the correct voltage is displayed on the back panel. *Do not attempt to operate the amplifier on incorrect voltage as this will damage the circuitry and void your*

warranty. If you are in doubt about the correct voltage for this amplifier we suggest reading the label on the back panel or consult your **ROTEL hi fi AUTHORIZED DEALER** for confirmation of the correct voltage.

Connect the **POWER CORD** to your wall socket for AC power. When you wish to disconnect the power cord from the wall, hold the plug firmly in your hand and then pull it out of the wall socket. *Do not unplug the power cord from the wall by pulling the cord only. This may damage the power cord and create a hazardous condition.* We strongly recommend that the amplifier be connected to the main's wall socket or an AC power line filter, not an extension cord.

If you wish to clean the cabinet, we suggest a clean, soft DRY cloth. *Never use cleaning compounds or solvents to clean the cabinet as they may damage the finish or remove the labels.* These could damage the circuitry if any residue falls inside the amplifier. There is **NO** user serviceable part inside this amplifier. **Please do not open the cabinet as this will expose you to the risk of potentially dangerous voltage and the risk of shock.**

## FRONT PANEL CONTROLS / INDICATOR LIGHTS

The front panel includes the main **POWER** button and the **POWER**, **BRIDGED MONO** and **AUTO** indicator lights. Press the **POWER** button once, the amplifier will turn ON and the **POWER** indicator light will illuminate. Press it again, the amplifier will turn OFF and all the indicator lights will extinguish. The **BRIDGED MONO** indicator light will illuminate only if the switch is in **BRIDGED MONO** position. The **AUTO** indicator light, *when the circuit is activated*, will illuminate when the circuit has AC power and an input signal is sensed by the circuit. When no input signal is noticed for 5 minutes, the **AUTO** circuit will turn the amplifier OFF.

## MAKING CONNECTIONS

When connecting the amplifier, please be certain to connect the Left and Right channel RCA inputs to the appropriate channels from your preamplifier or processor outputs to avoid incorrect channel placement during playback of your favorite music or movies.

The **SPEAKER** terminals are *color coded* on the RB 951 to help with you make correct connections. The **LEFT** and **RIGHT** speaker terminals are *red* for Positive (+) and *black* for Negative (-) connections. **Please ensure these connections are correct before turning the amplifier ON for the first time.**

The **SPEAKER** terminals will accept spade connectors, bare wire or "banana" plugs (*Non CE mark countries*) for speaker connections. Please observe proper left and right channel connections. Regardless of the type of connection made, please be certain that no stray wires are touching between the **POSITIVE (+)** and the **NEGATIVE (-)** terminals for each channel. This will cause the **PROTECTION** circuit to operate and the amplifier will not play.

When using the RB 951 in **BRIDGED MONO**, the amplifier becomes a single channel, high power *mono* amplifier. Two are required for stereo operation when used in bridged mono mode. **The SPEAKER wiring and the INPUT used are different when this is done.** The **LEFT** channel positive speaker terminal is used as the (+) terminal and the **RIGHT** channel positive speaker terminal is used as the (-) speaker terminal. **The LEFT channel INPUT** is used for the input signal in **BRIDGED MONO** mode. **No connection is made to the RIGHT channel INPUT or to the negative (-) speaker terminals for either the RIGHT or the LEFT speaker channels when in BRIDGED MONO mode.**

**The minimum speaker impedance during BRIDGED MONO operation is 8 ohms.** This is because, *when BRIDGED*, an amplifier will "see" the speaker impedance as half of its rated value. An 8 ohm speaker will appear to be a 4 ohm speaker to a **BRIDGED** amplifier. Therefore, *when BRIDGED*, a 4 ohm speaker would represent an unacceptably low impedance load of 2 ohms.

In **STEREO** operation, the **POSITIVE** amplifier (+) terminal for each channel should be connected to the Positive or red terminal on your speaker. The **NEGATIVE** amplifier (-) terminal for each channel should be connected to the Negative or black terminal on your speaker. If you incorrectly make these connections you will have a vague stereo image and very little bass response from your system.

When used for **PARALLEL MONO** operation, the amplifier will drive low impedance speaker loads. **Speaker connections are the same as stereo mode.** This mode of operation is for custom installation use where many speakers are connected to a speaker switching system, such as the Rotel RSS 900 speaker selector. This will also be useful if you have speakers that have an unusually low impedance. Speaker loads as low as 2 ohms may be used in this setting. *This low impedance speaker rating applies to parallel mono operation only.* Two RB 951 are needed for stereo use when in parallel mono mode.

## A FINAL WORD

We have designed this amplifier for high performance using test equipment and the human ear. We believe both methods are useful in the design of high fidelity audio electronics. *This is time consuming but we feel the music benefits from this care and attention to detail.* With our reputation for excellent sound quality, you can be certain that the RB 951 represents excellent value for money. We realize that there are many choices available and we thank you again for choosing the RB 951 for your system. Enjoy the music!

## SPECIFICATIONS:

Continuous Power Output (20-20 kHz, $\leq 0.03\%$ , 8 ohms)	50 watts/ch
Bridged Mono Power Output (20-20 kHz, $\leq 0.1\%$ THD, 8 ohms)	150 watts
Total Harmonic Distortion (20 Hz-20 kHz, 8 ohms)	$\leq 0.03\%$
Intermodulation Distortion (60 Hz : 7 kHz, 4:1)	$\leq 0.03\%$
Frequency Response	15-100,000 Hz, $\pm 1$ dB
Damping Factor (20-20,000 Hz, 8 ohms)	280
Speaker Impedance (Normal mode)	4 ohms minimum
Signal to Noise Ratio (IHF A network)	116 dB
Input Impedance/Sensitivity	32 k Ohms/1.5 volt
Auto Turn On (if activated)	10 mV input
Auto Turn Off Delay (no signal)	5 minutes
Power Requirements	115 Volts, 60 Hz or 230 Volts, 50 Hz
Power Consumption	200 Watts
Dimensions (W,H,D)	440 x 92 x 334 mm 17.38 x 3.63 x 13.19"
Weight (Net)	6.8 kg, 15 lbs.

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**All specifications are accurate at the time of printing. Rotel reserves the right to make improvements without notice.**

## SETTINGS FOR CUSTOM INSTALLATION

**SAFETY WARNING NOTE: IF YOU HAVE ANY DOUBT OR ARE NOT CERTAIN ABOUT YOUR ABILITY TO SAFELY MAKE THESE SETTINGS, DO NOT ATTEMPT TO DO THIS. IN SUCH A CASE, THESE SETTINGS SHOULD BE ADJUSTED BY YOUR INSTALLER OR DEALER ONLY. PLEASE UNPLUG THE AC POWER CORD BEFORE YOU OPEN THE AMPLIFIER. OPENING THE AMPLIFIER EXPOSES YOU TO THE RISK OF POTENTIALLY LETHAL HIGH VOLTAGE.**



**STEREO, BRIDGED MONO, or PARALLEL MONO** operation is possible. It is possible to bypass the INPUT VARIABLE RESISTORS with the internal jumpers. Input sensitivity switching with the Hi sensitivity setting is 0.775 v input; the Low setting is 1.5 v input. For **PARALLEL MONO** mode use, either input *or both* may be used. The **STEREO/MONO** mode and sensitivity connections are adjusted by using the internal jumpers, explained below.

**CAUTION:** Parallel mode is for mono use only. *Do not attempt to operate in parallel mono mode and bridged mono mode at the same time. This will potentially damage the circuitry of the RB 951. Such damage will not be covered by warranty.*

Take the top off the amplifier by removing the screws. Looking down at the PCB board *from the REAR* of the amplifier you will see JUMPER BLOCKS near the INPUT jacks. The LEFT and RIGHT jumper blocks are for the variable resistor (VR) ENABLE/BYPASS connections. The jumper blocks are numbered according to the following guide, which explains how to connect the jumpers to choose various modes of operation. **Once again, IF YOU HAVE ANY DOUBT ABOUT YOUR ABILITY TO MAKE THESE SETTINGS SAFELY, DO NOT ATTEMPT TO DO THIS.**

**THE JUMPER BLOCK IS CONNECTED TO THE DESIGNATED PINS FOR THE VARIOUS MODES OF OPERATION. (VR = Variable Resistors) JUMPERS TO CONNECT/PCB LABEL:**

<b>S604</b>	<b>S602</b>	<b>S603</b>
<b>VR/BYPASS</b>	<b>Mono/Stereo</b>	<b>VR/BYPASS</b>
<b>Left Jumper</b>	<b>Center Jumper</b>	<b>Right Jumper</b>

**VR ENABLED / STEREO MODE, PINS TO USE**

2/3	2/3	1/2
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**VR BYPASS / STEREO MODE, PINS TO USE**

1/2	2/3	2/3
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**VR ENABLED / MONO MODE, PINS TO USE**

2/3	1/2	1/2
-----	-----	-----

**VR BYPASS / MONO MODE, PINS TO USE**

1/2	1/2	2/3
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**SENSITIVITY SETTING JUMPER BLOCKS /PCB LABELS**

<b>S605</b>	<b>S606</b>
HI = 1/2, LOW = 2/3	HI = 1/2, LOW = 2/3

**AUTO TURN ON / TO ACTIVATE, PINS TO USE**

<b>S607</b>	<b>S608</b>
1/2	1/2

**AUTO TURN ON / TO DEFEAT, PINS TO USE**

<b>S607</b>	<b>S608</b>
2/3	2/3

In **PARALLEL MONO** mode, the inputs and the outputs are in parallel connection. For **PARALLEL** operation, the following connections should be made in the amplifier:

**PARALLEL MONO MODE:** P1 TO P2 and S602 connection 1/2

**NORMAL STEREO MODE:** P1 TO P3.

**IMPORTANT NOTE: DO NOT CONNECT THE JUMPER WIRE FROM P1 TO P2 DURING STEREO MODE USE, THIS WILL CAUSE THE RAIL FUSES TO "OPEN."**

The **VARIABLE INPUTS** are adjustable to the level desired. The variable input resistors are on the back panel, next to the inputs, and may be adjusted with a small flat blade screwdriver.

**SIGNAL LINK** connections will pass the input signal from the preamplifier or main control unit on to another power amplifier. Connect the RCA cables from the **SIGNAL LINK** output connections to the **INPUT** of the next power amplifier. This will allow you to "daisy chain" the amplifiers, one after the other, for ease of installation in systems with more than one amplifier.

## FRONT PANEL



## REAR PANEL

